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Draft Environmental Impact Statement

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1. P.C.S.
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Dennis Dyce

Memorandum

To: State Director,

From: State Director, California

Subject: Draft Environmental Impact Statement on Big Butte Timber Sale

A copy of this recently issued draft environmental statement is enclosed for your information.

ACTING STATE DIRECTOR

Enclosure:
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SUMMARY

Draft (x) Final ( ) Environmental Statement

Department of the Interior, Bureau of Land Management

1. Type of action: Administrative (x) Legislative ( )

2. Brief Description of Action: Proposed development of public access and initiation of a timber management program in the Big Butte Area of Mendocino and Trinity Counties, California. The sale will cover 300 acres in two units and will remove 6,600 MBF. Public recreational use would be allowed after development of a plan for management of recreation use.

3. Summary of Environmental Impact and Adverse Environmental Impacts: The proposal will have an impact upon water quality, soil stability, air quality, vegetation, wildlife, recreation use, primitive values and employment in the Covelo community. Major adverse impacts are the possibility of increased stream sedimentation and the loss of primitive values.

4. Alternatives Considered:

   A. No action
   B. Granting of private rights-of-way only
   C. Obtaining administrative access and granting of private rights-of-way
   D. Obtaining administrative or public access only.
   E. Management as a roadless area.

5. Date Draft Statement Made Available to CEQ and the Public:

   March 4, 1974.

6. Comments Have Been Requested From the Following:

Federal Agencies
Environmental Protection Agency
U.S.D.A., Agricultural Research Service
U.S.D.A., Forest Service
U.S.D.I.,Office of Environmental Project Review
U.S.D.I., Bureau of Indian Affairs, Bureau of Outdoor Recreation, Bureau of Sport Fisheries and Wildlife, Geological Survey, National Park Service

State Agencies
Office of Planning and Research, Office of the Governor (State Clearinghouse)

Local Government
Mendocino County Board of Supervisors
Trinity County Board of Supervisors

Organizations and Individuals
Louisiana-Pacific Corporation
Northern California County Supervisor's Association
North Coast Rivers Association
Sierra Club - Legal Defense Fund
Sierra Club - Redwood Chapter
Society of American Foresters- Northern California Section
Society of American Foresters, Jedediah Smith Chapter
The Wildlife Society, Sacramento Chapter
Mr. Stephen Birdelbough
Mr. John Brady
Mr. Hamilton Budge
Mr. Ken Lytle
Mr. Daniel Ruggles
Mr. Richard Wilson

DEPARTMENT OF THE INTERIOR

DRAFT

ENVIRONMENTAL STATEMENT

DES 74-13

Proposed

BIG BUTTE TIMBER SALE, CALIFORNIA

Prepared by

CALIFORNIA STATE OFFICE, SACRAMENTO, CALIFORNIA
BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

State Director

BIG BUTTE DRAFT ENVIRONMENTAL STATEMENT

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LOCATION MAP

I. PROPOSED ACTION

A. Purpose and Description

1. General

This proposal involves a specific timber sale on national resource lands, construction of 8 miles of additional road, improvement of 19 miles of existing road, acquisition of two easements and granting of a right-of-way permit to Louisiana-Pacific Corporation. It thus involves, (a) development of access into the Big Butte area of southwestern Trinity and northeastern Mendocino Counties, and, (b) initiation of management and development of the national resource lands. Land use planning has not been completed in this area. The East Mendocino Management Framework Plan (multiple-use plan), which will cover the Big Butte area, will not be completed until June 1975 and detailed forest management plans are even farther in the future. The proposed access acquisition, road construction, right-of-way grant and timber sale will, at least psychologically, constrain the choice of future management direction. As future plans develop, an analysis will be made of the environmental impact of implementation of those plans. Timber volumes to be offered, by species, are:

Douglas fir	1,900 MBF
ponderosa pine	1,900 MBF
sugar pine	500 MBF
white fir	2,200 MBF
incense cedar	100 MBF
	6,600 MBF

The proposed right-of-way grant to Louisiana-Pacific will involve construction of the first five miles of the additional access road into the area. If constructed by Louisiana-Pacific, the road would be on the same location and to the same standard as the BLM road.

2. Access Road

a. The proposed access road is 27 miles in length. It begins on the Mendocino Pass county road in Section 27, T. 23 N., R. 12 W., M.D.M. and continues in a northerly direction through Louisiana-Pacific Corporation, Richard A. Wilson and national resource lands to its terminus in Section 11, T. 25 N., R. 12 W., M.D.M., approximately one-half mile west of Big Butte. The first 19 miles of the proposed access road is an existing private road (to Section 34, T. 25 N., R. 12 W., M.D.M.). The last 8 miles will require new construction. Construction of this last 8 miles of road will be done either by the Bureau or by Louisiana-Pacific, depending upon which party has the most immediate need. This location was chosen from among four alternative routes. These are discussed in Section IX.

b. Improvement of Existing Road - The subgrade of the first 19 miles of road has been in existence for several years and has become quite stable. However, some areas need to be improved by widening the subgrade, constructing turnouts and improving drainage and alignment. The improvement work outlined above

will necessitate the removal of some trees and brush, to the extent necessary to achieve the required road width.

c. New Construction - The portion to be constructed is designed as a single lane road having a 16-foot subgrade and inter-visible turnouts. The road will have grades of not to exceed 12% and will be of balanced construction (waste material will not be side cast). It will be located on the upper slopes of the watershed. About one-half of the road will be constructed through brushlands on slopes of 40 to 80 percent; the remainder will traverse 0 to 90 percent slopes in the timber types. These slopes are typical of those encountered in the north coastal region of California. The clearing limits for the road right-of-way will be 10 feet from the edge of the cuts and 5 feet from the toe of the fills. All new cut and fill slopes will be stabilized and drainage installed under the construction contract.

3. Forest Management

National resource lands in the Big Butte area represent about 3% of the Ukiah District's timbered land and include approximately 3,100 acres of forest with an estimated volume of 30 million board feet. The forest inventory, conducted in 1963, and recent field studies show the major portion of this volume to be contained in large mature and overmature trees. Timber stands are generally two-storied with an uneven-aged mixed species composition. Mature and over-mature age classes make up the overstory, while the

understory ranges in age from seedlings to pole size timber. Mortality was found to be high in the mature overstory timber. The understory stands are generally overstocked and suppressed. The yearly growth of these stands was found to be barely keeping abreast of the volume lost to decay and mortality.

The planned cutting system will maintain a mixed species, all-aged forest. The selection system, either single tree or group selection, will be used to permit continuous establishment of regeneration and maintenance of a desirable stand structure. In the 60- to 100-year old white fir stands, the objective is to thin the overstocked timber. In marking these stands for harvest, tree spacing and the removal of over-mature, deformed, and defective trees were the primary criteria used.

4. Public Use

The public presently does not have vehicle access to the area. Public use of the area will be allowed, but only after a Recreation Management Plan has been completed. The plan will provide the basis for determining what type and intensity of public use the area can support.

5. Right-of-Way Permit

Issuing a right-of-way permit to Louisiana-Pacific Corporation will give them the right to construct a road across 4.7 miles of national resource land so that they can harvest approximately 30 MM bd. ft. of privately-owned timber. The permit will require

that the road be built on the location surveyed by the BLM, and will conform to all BLM road construction standards.

B. Location

The area, known locally as Big Butte, is about 160 miles north of San Francisco. Primary direct impacts of the proposed action will focus upon the proposed roadway and the 10,000 acres of BLM land located in T. 24 and 25 N., R. 12 W., M.D.M., which is from 12 to 18 miles north of Covelo, California. This is where the road improvement work, new road construction, timber harvesting and recreational use will take place.

The area is bounded on the north by the Six Rivers National Forest and on the east by the Mendocino National Forest and lands owned by Richard Wilson. It is bounded on the south and west by the ownerships of Louisiana-Pacific and Richard Wilson. Indirect impacts of the proposed action will be apparent in portions of these adjacent national forests and private ownerships; and in the case of socio-economic impacts, in Covelo and the Round Valley area. Big Butte, the prominent topographic feature which gives the area its name, is located in the northeastern portion of the BLM lands. The Yolla Bolly Wilderness Area lies generally to the northeast and is approximately two miles from the top of Big Butte (see Land Ownership Map, No. 2, for details)

C. Timing

Project planning efforts began in 1966 and were to culminate in 1972 with road construction and a timber sale program. The proposed

timber sale in the Big Butte area is included in the Ukiah District's fiscal year 1973 programmed cut. However, the target date will not be met due to the controversy generated by the proposed action and the need for preparation of an Environmental Impact Statement.

D. Management Interrelationships

1. U.S. Forest Service

The proposed action affects management of the adjacent private and national forest lands. The U.S. Forest Service considered constructing a road from Indian Dick Station into the Shinbone Ridge area (the BLM also considered this route for access into Big Butte), but they abandoned the project because of the presence of unstable soils and the excessive cost of needed bridge construction. The proposed BLM road may, therefore, become an integral part of the Forest Service plans to harvest the Shinbone Ridge timber, even though it might be possible to extend the Four Corners Rock road (see map No. 3) to remove this timber. However, an extension of the Yolla Bolly Wilderness Area into the Shinbone Ridge area is being considered. If this occurs, timber in the Shinbone Ridge area will not be harvested.

The Yolla Bolly Wilderness Area covers 111,000 acres in Tehama and Trinity Counties, within the Mendocino and Shasta-Trinity National Forests. The southwest boundary of the wilderness, in the vicinity of Big Butte, is along the Middle Fork of the Eel River.

The Forest Service lands adjacent to the Big Butte area were included in the recent inventory of roadless areas. The Chief of the Forest Service has issued a policy statement that, before initiating any activity that would change the character of a roadless area, an environmental impact statement shall be prepared. The lands on the Six Rivers National Forest are included in the Red Mountain roadless area. Those on the Mendocino National Forest, north of the private lands near Henthorne Lakes, are included in the Shinbone Ridge area. Those south of the private ownership are part of the Castle Peak area.

The Forest Service and the Bureau have agreed to work together on a development plan for all federal land in the area. The Bureau has already deferred development of national resource lands east of Bull Ridge until the Forest Service has finalized its plans for the Shinbone Ridge area.

2. Louisiana-Pacific Corporation

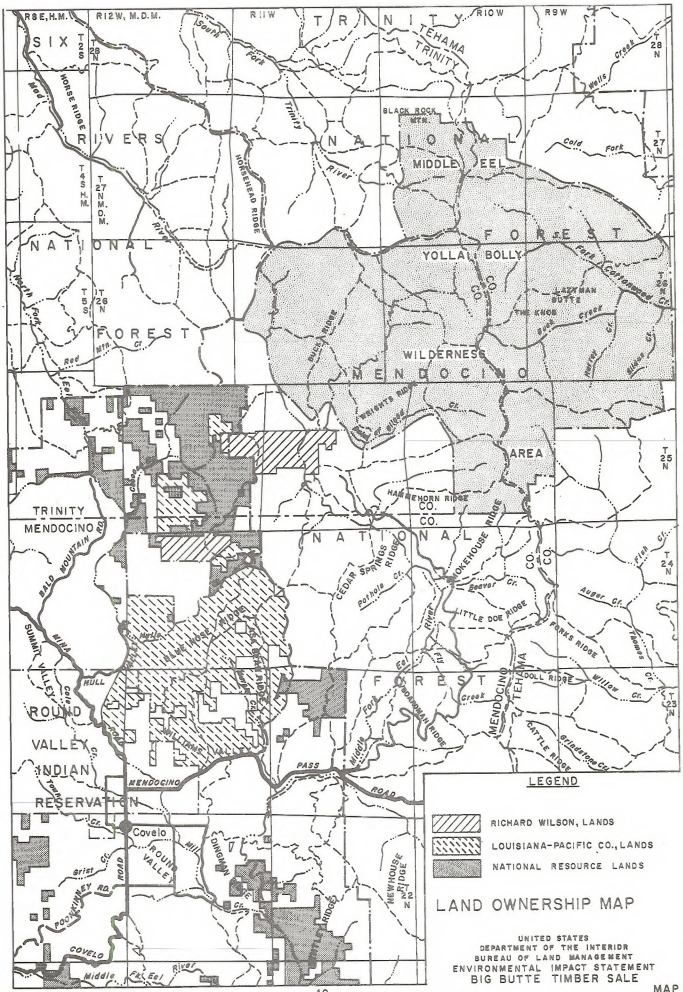
In 1960, Frank M. and Vivian Crawford (Crawford Lumber Company) purchased all of the merchantable timber located on Richard Wilson's Henthorne Lakes property (between BLM and the Yolla Bolly Wilderness Area). Subsequently, Louisiana-Pacific Corporation acquired this timber when they bought out Crawford Lumber Company in 1968.

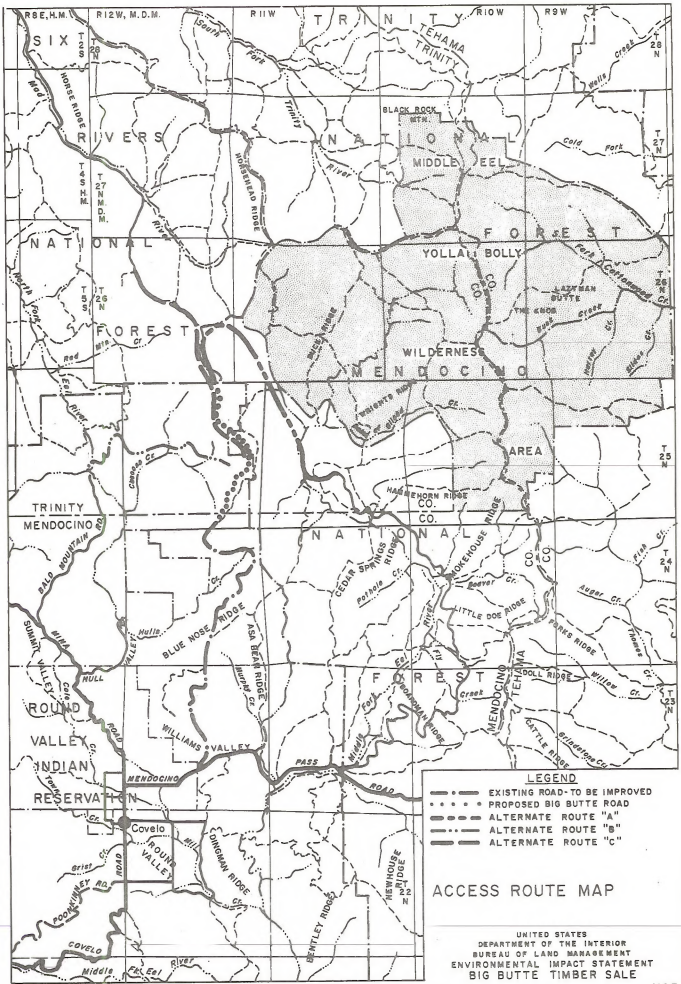
In July 1971, Louisiana-Pacific formally requested a right-of-way permit across 4.7 miles of national resource land so that they

could log the above timber as well as timber on their fee-owned lands in Section 11 and 14, T. 25 N., R. 12 W., M.D.M. Louisiana-Pacific has an immediate need for this permit, since the cutting rights on the Henthorne Lakes timber, although paid for in full, will expire in 1975. Issuance of the permit, however, has been delayed pending completion of this statement. Since the proposed action will have an effect on these plans, we have agreed to coordinate our efforts and consider each other's land management objectives.

3. Richard A. Wilson

Mr. Wilson plans to develop his property based upon a study completed by Lord Tyrrell and Associates. The study suggests four types of use; namely, a wilderness school, wilderness outings, private leased rights and recreation day use. Mr. Wilson has indicated that he prefers a combination of uses, preferably private leased rights in the Henthorne Lake area and day use east of the Eel River. Since the proposed action will have an effect on these development plans, we have agreed to coordinate our efforts and consider each other's land management objectives.


R8E, H.M.
R12W, M.D.M.
R11W
R10W
R9W
T 29 N
T 28 N
T 27 N
T 26 N
T 25 N
T 24 N
T 23 N
T 27 N, R 9 E, H.M.
T 27 N, R 8 E, M.D.M.
T 26 N, R 8 E, H.M.
SIX RIVERS NATIONAL FOREST
TRINITY
TEHAMA
TRINITY
MENDOCINO
NATIONAL FOREST
YOLLA BOLLY
MIDDLE EEL
WILDERNESS AREA
TRINITY
MENDOCINO
NATIONAL FOREST
ROUND VALLEY INDIAN RESERVATION
South Fork Trinity River
Mad River
Horse Ridge
Horsehead Ridge
Black Rock Mtn.
Willis Creek
Cold Fork
Trinity River
Yolla Bolly Mtn.
Cottonwood Creek
Lake Man Butte
The Knob
Rattlesnake Creek
Indian Creek
Rocky Ridge
Wrights Ridge
Rice Fork Eel River
Red Mtn.
Hull Creek
Hayfork Creek
Hayfork Ridge
Hennessy Ridge
Hennessy Creek
Hell Hole Ridge
Hell Hole Creek
Bald Mountain
Summit Valley
Mina
Hull Creek
Cedar Springs Ridge
Poplar Creek
Rattlesnake Ridge
Beaver Creek
Little Doe Ridge
Doe Ridge
Auger Creek
Yanders
Tooll Ridge
Wilson Creek
Cattle Ridge
Orchardhouse Creek
Mendocino Pass
Mendocino Pass Road
Covelo
Round Valley
Dingman Ridge
Newhouse Ridge
Rocky Valley Road
Covelo Road
Middle Eel River
LEGEND
RICHARD WILSON, LANDS
LOUISIANA-PACIFIC CO., LANDS
NATIONAL RESOURCE LANDS
LAND OWNERSHIP MAP
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL IMPACT STATEMENT
BIG BUTTE TIMBER SALE
MAP 2



ACCESS ROUTE MAP

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL IMPACT STATEMENT
BIG BUTTE TIMBER SALE

MAP 3

II. DESCRIPTION OF THE ENVIRONMENT

A. Physical Environment

1. Physiography

The physiography of the Big Butte area is typical of the interior Coast Range. It is characterized by steep, strongly dissected mountains with sharp, narrow ridges and deep V-shaped drainages. Elevations of the national resource lands range from 3,500 feet to 5,922 feet (Big Butte).

The area is drained by streams flowing south and west into Hulls Creek, which eventually empties into the North Fork of the Eel River. Only one small area, north of Big Butte, drains east into the North Fork of the Middle Fork of the Eel. The Middle and North Forks of the Eel River begin flowing south and southeast, but their ultimate course is in almost the opposite direction. Springs and seeps are found throughout the area and water is relatively abundant in most drainages at lower elevations.

2. Soil and Geology

The area is largely underlain by sandstone and shale formations, with small areas of schistose material scattered throughout. Hugo is the most predominant soil association. The remainder of the soils are classified as Hulls, Laughlin and Maymen associations. All of these soils are relatively stable in an undisturbed condition, exhibiting only slight soil movement,

but are susceptible to severe erosion when vegetative cover and litter are removed.

The most common characteristics for each of these soil associations are as follows:

Hugo soils are found mainly on north-facing slopes, where microclimates are cooler and more moist than on other sites. Soil acidity is relatively high, a condition that generally favors the growth of coniferous trees. Even though Hugo soils are found on very steep slopes, they are relatively stable. When the natural vegetation and litter is removed, however, the erosion hazard may become severe.

Hulls soils are primarily associated with grasses and hardwoods and are unsuitable for commercial timber production. These soils are relatively stable, except for some of the more clayey areas that tend to slip occasionally. The Hulls soils contribute more silt to stream courses than do the Hugo soils because they are less permeable and tend to bake during the hot summer periods.

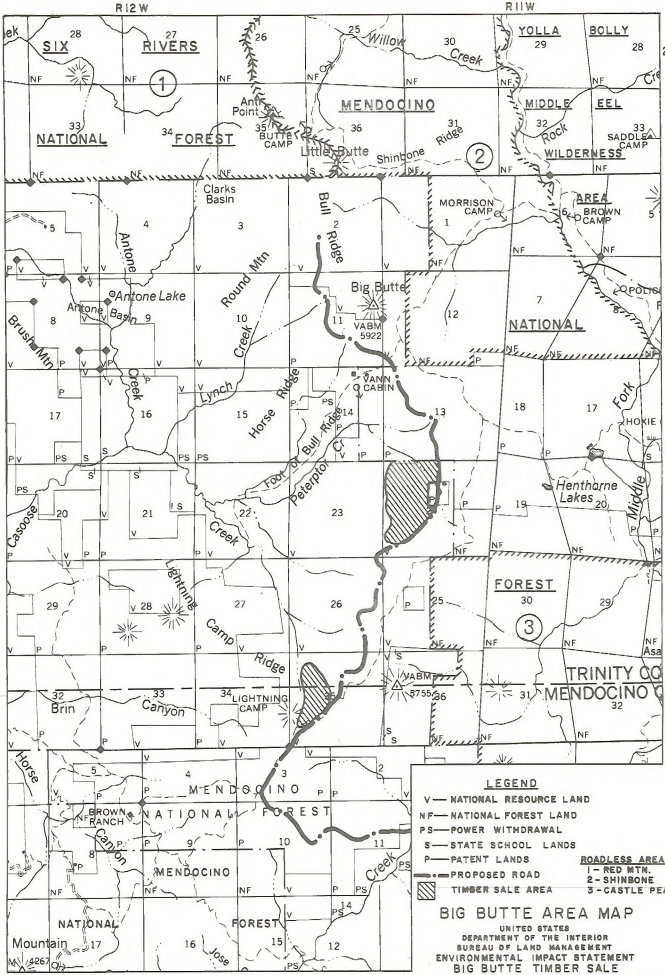
Laughlin soils, like the Hulls, are associated with grassland-oak types and are not suited for growing coniferous species. They are well-drained and moderately permeable. Erodibility is moderate under natural conditions, but increases as vegetation is removed and the soil surface exposed.

Maymen soils are associated with the chaparral vegetative type. They are typically shallow and highly acidic. The soils are dry from mid-May or June until sometime in September. Permeability is moderate to moderately rapid and the soils have a low water-holding capacity. Disturbed areas are susceptible to severe erosion.

Most of the rock types in the region are Franciscan formation sandstones, shales, conglomerates and schists. These rocks, since the time of their formation in an ancient sea, have been severely folded, faulted and crushed by mountain building activity. Round Valley is an example of a groundwater basin, formed in Franciscan rocks, as a result of downfaulting of large blocks and a partial filling of the depressions with alluvium and lake deposits.

3. Water Quality

These Franciscan formations contain a relatively low percentage of readily soluble minerals. Runoff, therefore, carries low concentrations of dissolved solids and is calcium bicarbonate in character. Water quality is usually high and there are no known sources of chemical or biological contamination in the Big Butte area. However, during periods of intense rainfall and flooding, the suspended sediment load and turbidity are high due to the rugged topography and steep gradients of the watersheds. Interim water quality objectives were established by



BIG BUTTE AREA MAP

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL IMPACT STATEMENT
BIG BUTTE TIMBER SALE

MAP 4

the North Coast Regional Water Quality Control Board in June, 1971. The objectives provide that, insofar as they may be influenced by waste discharges, by wastes originating from land management or cultural practices or from other human activities, the North Coastal Basin waters shall meet, among others, the following objectives:

a. Color: The color of the waters of the basin shall not be significantly increased above natural occurring background levels.

b. Turbidity: Turbidity shall not be increased more than 20 percent above naturally occurring background levels.

c. Bottom deposits: There shall be no bottom deposits other than of natural causes in the waters of the basin.

4. Air Quality

Because of its remoteness, the air quality in the Big Butte area is excellent. Private logging operations and vehicular traffic create some air pollution although the amount produced is not noticeable. Carbon monoxide, hydrocarbons and particulate matter are the main contaminants. Photo-chemical oxidants, sulfur oxides and radiological contaminants are relatively unknown.

5. Climate

The climate of the Round Valley (Covelo) area can be characterized as moist sub-humid mesothermal with warm dry summers

and cool moist winters. High summer temperatures are normal and the frost-free period averages 168 days.

Annual precipitation averages 50 inches, about 20% of which is winter snowfall. Winter temperatures range from 0° F. to 35° F., while summer temperatures vary from 45° F., to 85° F. Average summer temperatures, however, are somewhat cooler in the uplands of the Big Butte area than in Round Valley.

B. Biotic Components

1. Vegetation

The major vegetative classifications, in terms of size, in the Big Butte area are the mixed-conifer forest and the chaparral types. Scattered grassy openings, often with an open canopy of oaks, are found throughout the coniferous type. Riparian species are found in thin stringers along the perennial streams.

There are no population inventories of vegetative species in the Big Butte area. The most common species, however, are listed in Illustration I on page 25 .

a. Mixed-Conifer Type

The mixed-conifer type comprises 3,100 acres and is found mainly on the north aspects of ridges and on the flatter areas. The forest canopy is uneven-aged and two-storied. It is composed of an overstory of Douglas fir, ponderosa pine, sugar pine, white fir and incense cedar (listed in order of abundance) and an understory of white fir with some incense cedar. Other species found in the mixed-conifer type include black oak, bracken fern, buckbrush, manzanita and several species of brome.

b. Chaparral Type

The chaparral type, commonly found on ridgetops and on the shallower soils, is composed of many species, including

scrub oak, ceanothus, manzanita, chamise, chinquapin, lupine, poison oak, yerba santa and whitethorn.

c. Grass Type

The vegetation of the grassy glade areas includes blue wildrye grass, squirrel tail, June grass, needle grass, wild rose, lupine and several bromes.

2. Animals

Many animal species are either known or suspected to inhabit the Big Butte area. It presently affords a "wilderness" type habitat because of its remoteness and the relative absence of human activity. This is evidenced by the presence of black bear and eagles and the suspected presence of the mountain lion.

The actual number of species inhabiting the Big Butte area is not known and no population studies have been conducted in the immediate area. The following estimates have been made for deer and upland game birds, based upon the California Fish and Wildlife Plan, Volume 3, Part A, California Department of Fish and Game, 1965. Unfortunately, not enough data is available to make population estimates for other animal species. The black-tailed deer population in the Big Butte area is about 40-50 deer per square mile. The population of upland game birds (grouse and quail) varies from 10 to 100 per acre - 10 per acre in the chaparral type to 100 per acre in riparian types. The most common species in the Big Butte area are listed in Illustration II on page 26.

The golden eagle, while more adaptable to human presence than the bald eagle, often suffers a reduction in nesting and hatching success when subjected to human contact. It, too, requires snags or tall flat-topped trees for nesting, perching and observation. The golden eagle has been observed in all seasons and it is reported that they do nest in the Big Butte area.

Red-tailed hawks, which have been observed in the area, also require habitat similar to the golden eagle.

c. Fish

All of the larger streams flowing from the Big Butte area are tributary to the North Fork of the Eel River which supports anadromous runs of winter steelhead. Hulls Creek is the largest of these tributaries and would be most affected by the proposed action. It contains steelhead spawning and rearing habitat from its mouth up to a 30-foot waterfall that forms a barrier near the headwaters. The presence of great blue herons and mergansers along the Eel River and Hulls Creek indicates that substantial populations of fish are present in both streams.

A four-mile section of Casoose Creek, up to a series of falls below Antone Creek, also provides steelhead habitat. The remainder of Casoose Creek, as well as Lynch Creek, Peterptor Creek and Red Rock Creek support resident populations

of rainbow trout. Except for Hulls Creek, the predominant use of Big Butte's tributaries is by resident trout.

3. Rare and Endangered Species

There are no known rare and endangered vegetative species in the Big Butte area and the only known rare and endangered wildlife species is the bald eagle. Although bald eagles have been observed in the area, their population is unknown at this time.

Wildlife concentration areas are located along the coniferous forest-chaparral ecotone and within the glade and riparian areas.

a. Mammals

Black-tailed deer inhabit all vegetation types in the Big Butte area at some time during the year. They are year-long residents but migrate altitudinally from December through March, from the 5,500 feet to 3,500 feet elevations. The migration is reversed in the spring, commencing with snow-melt and greenup. Glades and south-facing slopes are preferred for summer use and fawning areas. The chaparral-brush types are heavily used for browsing.

The black bear's primary habitat is the coniferous forest, but it also depends upon the chaparral type for a large proportion of its food requirements. It is generally secretive and, while fairly tolerant of man, conflicts easily occur.

The mountain lion, on the other hand, requires an area remote from human presence. It is strongly territorial, secretive and wide-ranging, and is almost completely intolerant of man.

A variety of small mammals inhabit the Big Butte area. The diversity of habitat conditions present provides the requirements for many species. One of the most abundant, the grey

squirrel, is found throughout the forested area. Since they are very dependent upon acorns, they are most closely associated with those areas where black oak constitutes a greater proportion of the forest canopy.

b. Birds

Blue grouse can primarily be found in the coniferous type, often concentrated near springs, seeps and other wet areas. They are particularly dependent upon luxuriant herbaceous vegetation for nesting cover.

Both mountain and valley quail are found in the area. Mountain quail are more specific to the coniferous forest, but both species intermix throughout the area. Both species prefer the glades and areas of disturbed soil, where seeds are plentiful. Chaparral vegetation provides required cover.

Mourning dove and pigeons are common and both prefer areas where the soil has been disturbed and seeds are abundant.

Bald eagles have been observed in the area. They are generally intolerant of human intrusions, require tall snags, flat-topped trees, or cliff areas for nesting, and are dependent upon streams containing fish and streamside snags (for perching and observation). Bald eagles have been rarely observed in the area except in the fall. It is doubtful that they nest in the area.

PLANTS IN THE BIG BUTTE AREA

COMMON NAME	SCIENTIFIC NAME
Black oak	Quercus kellogii
Blue wildrye grass	Elymus glaucus
Bracken fern	Pteridium aquilinum
Bur clover	Medicago hispida
California laurel	Umbellaria californica
Canyon liveoak	Quercus chrysolepis
Chamise	Adenostema fasciculatum
Deer brush	Ceanothus integerrimus
Douglas-fir	Pseudotsuga menziesii
Digger pine	Pinus sabiniana
Filaree	Erodium sp.
Golden chinaquapin	Castanopsis chrysophylla
Gooseberry	Ribes Roezlii
Incense cedar	Libocedrus decurrens
Interior liveoak	Quercus wislizenii
June grass	Koleria cristata
Knobcone pine	Pinus attenuata
Lupine	Lupinus sp.
Mountain mahogany	Cercocarpus betuloides
Madrone	Arbutus menziesii
Manzanita	Arctostaphylos manzanita
Needlegrass	Stipa spp.
Oceanspray	Holidiscus discolor
Pacific dogwood	Cornus nuttallii
Poison oak	Rhus diversiloba
Ponderosa pine	Pinus ponderosa
Red brome	Bromus rubens
Ripgut brome	Bromus rigidus
Rush	Juncus sp.
Scrub oak	Quercus dumosa
Sedge	Carex sp.
Soft chess	Bromus malus
Squirreltail	Sitanion hystrix
Sugar pine	Pinus lambertiana
Tanoak	Lithocarpus densiflora
Tarweed	Madra spp.
Wedgeleaf ceanothus	Ceanothus cuneatus
White fir	Abies concolor
White oak	Quercus lobata
Whitethorn	Ceanothus incanus
Wild oats	Avena barbata
Wild pea	Lathrus spp.
Wild raspberry	Rubus idaeus
Wild rose	Rosa sp.
Yerba santa	Eriodictyon californicum

WILDLIFE IN THE BIG BUTTE AREA

COMMON NAME	SCIENTIFIC NAME
BIG GAME	
Black bear	Ursus americanus
Black-tailed deer	Odocoileus columbianus
Mountain lion	Felis concolor
UPLAND GAME	
Band-tailed pigeon	Columba fasciata
Black-tailed jackrabbit	Lepus californicus
Blue grouse	Dendragapus obscurus
Brush rabbit	Sylvilagus bachmani
Gray squirrel	Scriurus griseus
Mountain quail	Oreortyx pictus
Mourning dove	Zenaidura macroura
Turkey	Meleagris gallopavo
Valley quail	Lophortyx californicus
OTHER BIRDS	
Anna's hummingbird	Calypte anna
Bald eagle	Haliaeetus leucocephalus
Black swift	Cypseloides niger
Belted king fisher	Megaceryle alcyon
(Black-eared) Pigmy nuthatch	Sitta pygmaea
Black-throated gray warbler	Pendroica nigrescens
Brewer's blackbird	Euphagus cyanocephalus
Cooper's hawk	Accipiter cooperii
Calliope hummingbird	Stellulu calliope
(Cabanis) Hairy woodpecker	Dendrocopos villosus
(Common) Cliff swallow	Petrochelidon pyrrhonota
Clark's nutcracker	Nucifraga columbiana
Common bush-tit	Psaltriparus minimus
(Cassin) Solitary vireo	Vireo solitarius
Common merganser	Mergus merganser
(Calaveras) Nashville warbler	Vermivora ruficapilla
(California) Purple finch	Carpodacus purpureus
Cassin's finch	Carpodarcus cassinii
Dipper	Cinclus mexicanus
(Dusky) poor-will	Phalaenoptilus nuttallii
Great-horned owl	Bubo virginianus
Great blue heron	Ardea herodias
Green-tailed towhee	Chlorura chlorura
Goshawk	Accipter gentilis
Golden eagle	Aquila chrysaetos
Hammond's flycatcher	Empidonax hammondii
Hermit warbler	Dendroica occidentalis
Killdeer	Charadrius vociferus
(Lutescent) Orange-crowned warbler	Vermivora celata

COMMON NAME	SCIENTIFIC NAME
Lazuli bunting	Passerina amoenia
MacGillwray's warbler	Oporornis tolmiei
Monterey hermit thrush	Hylocichla guttata slevini
Mallard	Anas platyrhynchos
Mountain bluebird	Sialia currucoides
(Montane) Lincoln's sparrow	Melospiza lincolnii
(Northern) White-headed woodpecker	Dendrocopos albolarvatus
(Northern) Western flycatcher	Empidonas difficilis
(Northern) Violet-green swallow	Tachycineta thalassina
(Northern) Purple martin	Progne subis
(Northern) Chestnut-backed chickadee	Parus cufescens
(Northern) Rock wren	Salpinctes obsoletus
(Northern) California thrasher	Toxostoma rediuivum
(Northern) Townsend's solitaire	Myadestes townsendi
(Northern) Pine siskin	Spinus pinus
Olive-sided flycatcher	Nuttallornis borealis
Pileated woodpecker	Dryocopus pileatus
(Pallid) wren-tit	Chamaea fasciata
(Pacific) Audubon's warbler	Pendroica auduboni
(Pacific) Black-headed grosbeak	Pheucticus melanocephalus
Rufous hummingbird	Selasphorus rufus
Red-tailed hawk	Buteo jamaicensis
Red-shafted flicker	Colaptes cafer
Raven	Corvus corax
Red-breasted nuthatch	Sitta canadensis
Red crosbill	Loxia curvirostra
Robin	Turdus migratorius
Sharp-skinned hawk	Accipiter striatus
Sparrow hawk	Falco sparverius
Screech owl	Otus asio
(Sierra) Yellow-bellied sawsucker	Sphyrapicus varius
Steller's jay	Cyanocitta stelleri
Scrub jay	Aphelocoma coerulescens
(Short-tailed) Mountain chickadee	Parus gambeli
(Slender-billed) White-breasted nuthatch	Sitta carolinesis
(Sierra Nevada) Brown creeper	Certhia familiaris
(San Joaquin) Bewick's wren	Thryomanes bewickii
(Sacramento) Spotted towhee	Pipilo erythrophthalmus
(Sierra Nevada) Oregon junco	Junco oreganus
Townsend's warbler	Dendroica townsendi
Turkey vulture	Cathartes aura
(Willow) Downy woodpecker	Dendrocopos pubescens
Western kingbird	Tyrannus verticalis
Wright flycatcher	Empidonax oberbolseri
Western wood pewee	Contopus sordidulus
(Western) House wren	Troglodytes aedon

COMMON NAME	SCIENTIFIC NAME
Western (Mexican) bluebird	Sialia mexicana
(Western) Golden-crowned kinglet	Regulus satrapa
(Western) Warbling vireo	Vireo gilvus
Western tanager	Piranga ludoviciana
(Western) evening grosbeak	Itesperiphona vespertina
Wilson's warbler	Wilsonia pusilla
Western meadow lark	Sturnella neglecta
(Western) lark sparrow	Chondestes grammacus
(Western) chipping sparrow	Spizella passerina
(Yolla Bolly) Fox sparrow	Passerella iliaca
OTHER MAMMALS	
Badger	Taxidea taxus
Bobcat	Lynx rufous
Coyote	Canis latrans
Gray fox	Urocyon cinereoargenteus
Raccoon	Procyon lotor
Mink	Mustela vison
Spotted skunk	Spilogale putoris
Striped skunk	Mephitis mephitis
California ground squirrel	Citellus beecheyi
Townsend chipmunk	Eutamias townsendi
Valley pocket gopher	Thomomys bottae
Porcupine	Erithizon dorsatum
Western harvest mouse	Reithrodontomys megalotis
Deer mouse	Peromyscus maniculatus
Brush mouse	Peromyscus boylei
Pinon mouse	Peromyscus truei
California vole	Microtus californicus
Pacific jumping mouse	Zapus trinotatus
Long-tailed weasel	Mustela frenata
AMPHIBIANS AND REPTILES	
Northern pacific rattlesnake	Crotalus viridis
Western aquatic garter snake	Thamnophis couchi
Western terrestrial garter snake	Thamnophis elegans
Common garter snake	Thamnophis sirtalis
Pacific gopher snake	Pituophis melanoleucus
Common kingsnake	Lampropeltis getulus
Western yellow-bellied racer	Coluber constrictor
Alligator lizard	Gerrhonotus spp.
Western skink	Eumeces skiltoneanus
Western fence lizard	Sceloporus occidentalis
Western pond turtle	Clemmys marmorata
Red-legged frog	Rana aurora
Bull frog	Rana catesbeiana
Foothill yellow-legged frog	Rana boylei
Pacific treefrog	Hyla regilla
Ensatina (salamander)	Ensatina spp.

C. Ecological Interrelationships

Ecosystems can be defined by describing their physical and biotic components and by studying the dynamics of ecosystem function. In considering ecological interrelationships, we focus on those processes which express the interaction of system components and the changes in the system which occur over time.

The ecosystem must be examined from a diachronic orientation. This presents a problem in analysis, because we are accustomed to employing a synchronic or static approach, which describes a given phenomenon at a given time. Ecosystems respond, however, to both present and past events, and a specific system is defined in part by its history. The identification of dynamic patterns is usually based upon time series analysis, requiring a program of data collection at regular intervals over an extended period of time. In Big Butte, we lack this continuity of data, so it is necessary to extend our essentially static observations to form broad hypotheses of trends in biotic composition and system function. Due to the limitations of this approach, establishment of an intensive monitoring program is essential to tracing environmental impacts over time and space.

The relationships between system components, expressed as rates of flow of energy, water, and nutrients, change diurnally, seasonally, and over long-term climatic cycles. When the environment changes so that there is an increase in soil fertility, a decrease in light intensity, or other modification, there may be replacement

of some components of the ecosystem by others that are relatively better adapted to the changed conditions. As these changes usually progress through successive recognizable stages, it is possible to trace the development of the community toward a climax state. This climax state can be expected to persist until there is a change in environmental conditions, leading to reversion to a more seral state of development.

In the Sierras, the Mixed-Conifer Zone occupies an intermediate elevational position between the Ponderosa Pine Zone and the True-Fir Zone. In the coast range, however, the Ponderosa Pine Zone is absent and the Mixed-Conifer Zone grades directly into the Chaparral Zone, which is composed primarily of sclerophyll shrubs, at lower elevations. This appears to be the case at Big Butte.

Successional relationships in the Big Butte area are not completely understood. Brushfields frequently develop on burned or logged-over forest sites, slowing the rate of succession and, with repeated burning, forming long-term sub-climax communities. The chaparral and forest communities are often fire-induced seral types. With repeated burning, conifers are often eliminated and shrub density increased (most shrub dominants either sprout after fire, or produce seed which remains viable for long periods of time and is not destroyed by fire). In other areas, particularly where available moisture during the summer growing season is limiting, the chaparral type is probably climax. Chaparral is likely to be

climax on the shallow Maymen soils and along some of the ridge-tops in the area.

Ponderosa pine is usually seral, but it may become climax on poorly drained or extremely xeric forest sites. Sugar pine is also seral, but is very long-lived. Douglas fir is normally seral, except on xeric sites, where it may form a climax association with incense cedar. White fir is the most shade tolerant conifer in the area and dominates the understory. Therefore, if environmental conditions remained static, it would probably become the dominant climax species. An incense cedar-white fir association would appear to be climax on the more mesic sites in the area. As mortality increases in the overstory, which mainly consists of the less tolerant pines and Douglas fir, it would appear likely that the proportion of more tolerant species will increase.

The mixed-conifer type is closely related to the incidence of fire. It has often been said that increased fire protection has accelerated successional development. In the Big Butte area, this would indicate a more rapid movement toward a white fir climax. However, the possibility of fire occurring during the course of a 100-200 year rotation is still relatively high. The average acreage burned on the Ukiah District is 6000 acres per year. Total national resource land acreage is about 530,000 acres. If one-half of the annual burned acreage is on lands where fires have previously occurred, a fire could be expected on the remaining acreage about once in every 180 years. There is, therefore, a

good chance that some stands will revert to seral successional stages, and that the Big Butte area will continue to represent a mixed-species, uneven-aged mosaic.

An increase in the bark beetle population has been observed in the Big Butte area. Aerial surveys, conducted in August of 1972, showed that the number of beetle-killed pine had tripled in two years. An estimated 4 to 5 percent of the pine timber had been affected. Two factors appear to be contributing to increasing mortality - below-normal precipitation, and the lack of vigor of the over-mature pine. Experience in the Sierra-Nevada indicates that continued drought could lead to severe moisture stress and trigger an epidemic that might kill as much as 70% of the pines. It is not certain that this would result in dominance by the more tolerant species. It is also possible, that a bark beetle epidemic might open the stand sufficiently to allow establishment of some of the more intolerant tree species, thus maintaining the mixed conifer type. If die-off of the pines was sufficiently great, there is a strong possibility that white fir mortality due to sunscald would increase. In any event, it is problematical whether the more suppressed white fir would respond to release.

If the trend toward climax is established, we would anticipate a decrease in the absolute quantity and variety of understory vegetation, because of changes in the amount of light reaching the forest floor and changes in micro-climate. These changes

would generally be less favorable to animals.

In some of the grassy glade areas, there is evidence of encroachment by conifers around the margin. There is some evidence to indicate that this encroachment is a result of heavy consumption of the herbaceous vegetation by animals, which contributed to lowering of the water table and increased the relative ability of the trees to become established and compete for moisture and nutrients.

The functions of the ecosystem can be summarized into three processes -- energy flow, the nutrient cycle, and the hydrologic cycle.

1. Energy Flow

   Several years of study would be needed to define the parameters of ecological processes in the Big Butte ecosystems. At this point, all we are able to do is generalize about the relationships between system components.

   Almost all energy enters the ecosystem as sunlight, but only 1% of the light that falls on the system is converted by green plants into chemical energy. The remainder is reflected, transmitted through leaves, or dissipated as heat.

   The chemical energy, or food, is subsequently transported through plant tissues and the tissues of consumer and decomposer organisms. Within each group, some of the chemical energy is used for bodily processes, growth, reproduction, and

movement. The chemical energy is converted to heat energy, through respiration. Some energy is removed from the system by consumer organisms, by fires and by the removal of biotic components by man.

Once energy is converted from a stored form (food or body tissue) to an active form (heat), it becomes an output from the system. The ecosystem is dependent upon a continual input of solar radiation.

2. Nutrient Cycle

The producer role in the system is filled by food-manufacturing vegetation (autotrophs), which convert inorganic chemicals to a simple form of sugar (glucose), through the process of photosynthesis. These simple sugars are then converted by plants and animals into more complex carbohydrates, proteins and fats.

These nutrients then cycle through the system; through first- and second-order (predators and parasites) consumers and decomposers. The decomposers convert the complex organic tissues back into inorganic substances, including nitrogen, potassium, phosphorous and calcium. They are then taken up by the plants through their root systems, beginning the cycle again, or are stored in the soil. Nitrogen may be returned to the atmosphere, where it becomes available to nitrogen-fixing plants.

Forests are unique, when compared to other ecosystems, in that a large proportion of nutrients are stored in vegetation for

relatively long periods of time before being made available to other organisms. Forest ecosystems cannot be visualized as simple food chains. A high percentage of the total biomass is cycled directly from producer to decomposer, or is consumed by fire.

3. Hydrologic Cycle

Both the nutrient cycle and energy flow are regulated, to a large extent, by the hydrologic cycle, which controls the availability of nutrients to plant roots, the rate of movement of nutrients through the plant, the decomposition of plant litter, and the development of the soil profile.

D. Land Use

Livestock grazing and a limited amount of recreation are presently the predominant uses made of the national resource lands in the Big Butte area. There are no economically valuable deposits of minerals in the area.

1. Livestock Grazing

One grazing lease, issued to Richard Wilson, authorizes 1,003 AUM's (animal unit months) of use on 5,015 acres in the Big Butte area. Although a 12-month season of use is authorized, present use is confined to the summer months and is relatively light. The lease area is apparently used as a bridge between the lessee's private holdings which adjoin the national resource land on the south and east. The areas suitable for grazing are

confined to the scattered grass openings and understory shrubs, forbs and sparce grass cover found beneath the timber overstory. Other openings along the brush ridges are characterized by unstable soils that lack fertility.

2. Recreation

There is presently no legal public access into the Big Butte area from the south and west,and all physical access for motor vehicles crosses private land. There is trail access from the National Forest, but these routes are seldom used because the trails are not maintained and are difficult to locate and follow.

The Big Butte area does have considerable potential for outdoor recreation. Hunting (for bear, deer, quail, dove, pigeon and grouse) is one of the more important potential uses.

Family camping has been increasing at the rate of 10% a year over the past three years on the adjacent Mendocino National Forest. Big Butte contains two potential sites for campground development. Winter sports potential and suitability for off-road vehicle (ORV) use are very limited and these will probably not become important uses of the public lands.

The Big Butte area lies within two miles of the Yolla Bolly Wilderness. The presence of an existing jeep trail detracts from the wilderness quality of the area, but portions of the

Big Butte area offer some potential for providing a wilderness experience. Present use of the Yolla Bolly is not as heavy as that experienced by most of the Sierra-Nevada Wilderness Areas, but is increasing.

3. Timber

Timber on the public lands in the Big Butte area has not been harvested. However, timber harvesting is scheduled on the adjacent private lands and Big Butte possesses considerable potential for sustained yield forest management. Since allowable-cut is computed for the entire Ukiah District, no data are available for this specific area.

The timber stands in the Big Butte area are uneven-aged and two-storied. The overstory timber is overmature (200+ years), and is characterized by flat-topped crowns, sparse foliage and broken tops. The annual loss to mortality is about equal to annual increment. Trees in the understory vary from 3 to 23 inches in diameter and range up to 150 years in age.

The timber growing potential of the area has been determined to be Site Class III (site index 130), with an annual growth potential of 800 to 1000 board feet per acre. Stocking in some stands is up to 400 trees per acre (normal stocking would be about 100 trees per acre). Yield is far below potential because of the stagnated condition of the understory.

Visitor Use of Yolla Bolly Wilderness
(Based on Traffic Counts on Entry Roads)

Road Name or Point of Access	Visitor Days	
Blands Cove from Covelo	1,000	(1)
Indian Dick from Covelo	29,000	(2)
USFS 27N07 East Low Gap	67	
USFS 29N15 from Corning, Tomhead	635	
USFS 29N15 from Corning, Rat Trap Gap	52	
USFS 28N10 from Hayfork, Stuart Gap	1,234	(3)
USFS 29N30 from Ruth, W. Low Gap	67	
USFS 29N30 from Ruth, Penny Ridge	37	
TOTAL	32,092	

(1) Use of the Blands Cove Road dropped off after the first year.

(2) Indian Dick includes all roads leading to the Yolla Bolly Wilderness from the south.

(3) Stuart Gap entrance station has two lakes for fishing nearby and this fishing use is included. Estimated that 60% of the use was by fishermen. No lakes are near the proposed Big Butte Road.

4. Primitive Value

The Big Butte area could be managed for its primitive values. It exceeds the minimum size required for management as a primitive area and present impacts are limited to one "pioneer" road, which could be rehabilitated. Other criteria normally used in evaluating a primitive experience and the quality of such experiences in the subject area are as follows:

a. Opportunities for solitude - excellent

b. Opportunities for primitive types of recreation (hiking, horseback riding, camping, non-mechanized boating, wildlife viewing, fishing) - fair to good

c. Scenic quality - fair

The overall opportunities for a primitive experience are considered good on a poor-fair-good-excellent scale.

The existing primitive values are enhanced by the current status of public lands to the east and north of the subject area. Four areas are presently managed to maintain natural conditions:

a. Yolla Bolly Wilderness Area

b. Castle Peak Roadless Area - potential addition to wilderness; no development until final classification is determined.

c. Shinbone Ridge Roadless Area "

d. Red Mountain - Ant Hill "

E. Social Environment

In 1970, Mendocino County had a population of 51,101; there had

been essentially no change from the last decennial count.

Per-capita personal income averaged $2,916. This was about 80 percent of the statewide average income. Approximately 12 percent of the families in the county had incomes below the poverty level, while 29 percent had incomes over $12,000 per year.

Round Valley, with a 1970 population of about 1,500, reflects the county's lack of growth over the past ten years. About 3 percent of the people in the county reside in Round Valley and, of the valley residents, approximately 25 percent are members of the several Round Valley Indian tribes. Almost 60 percent of the valley residents fall into the young and elderly age groups which are outside the normal labor force.

Round Valley has been experiencing considerable out-migration in the age groups between 18 and 35, primarily due to a lack of job opportunities. Employment in the valley is concentrated in the manufacturing sector. The lumber and wood products industry employs over 200 people and comprises over 50% of total employment. Agricultural employment accounts for another 22 percent of employment. Both industries are seasonal and high unemployment is a continuing problem during the winter months. The Economic Development Administration has identified the area as having a problem of persistent unemployment.

Historically, extensive agriculture provided the impetus for settlement of the Round Valley area. Its remoteness from markets and supply sources, however, has largely determined the rate of agricultural development. Raising beef cattle is presently the

primary farm activity.

F. Aesthetic Value

Seeing or visual perception is the primary component of aesthetic experience in the Big Butte area. The quality of the visual experience is affected by five landscape characteristics - topography, color, water, vegetation and unnatural intrusions. Diversity and/or harmonious combinations of these characteristics plus lack of discordant influences are key factors affecting viewing interest.

Topography is normally more interesting as it becomes steeper and more massive. The area is comprised of moderately steep slopes; however, no land forms could be considered massive. Slope gradient has produced some of the more noticeable topographic features, such as stream courses and shale outcrops, but they occur only on a small scale. Compared to other features in the Klamath-Siskiyou landscape province (which includes the Big Butte area), land form has moderate perceptual value.

Vivid color combinations or contrasts, oftentimes the most eye-catching feature of a landscape, are not too evident in the area. Some variety in color is created by the mixture of vegetative types, occasional periods of snow cover, and seasonal foliage changes. Other landscape components - soil, rock and water - are either drab or a minor part of the natural setting. The predominant greens, browns, greys and yellows are harmonious but relatively uninteresting due to lack of contrast. Vivid

colors, such as orange, red, and white, do create contrasts, but only for short periods. Over the entire year, color is not an outstanding landscape feature.

Water, although present in small tributary streams at lower elevations, is a minor feature of the Big Butte landscape. Compared to large reservoir, lake and river areas, the water feature has low perceptual value.

Variation in vegetative patterns and texture is the primary landscape characteristic in the study area. The intermixture of conifer, hardwood, brush and grass types creates a constantly changing array of visual patterns. Two of the more interesting patterns are grassy glades interspersed in conifer stands and islands and streamers of tree growth in grass and brush areas. Natural vegetation occurs in uneven growth patterns, thereby adding an important element of texture to the landscape.

The other types of sensory perception - hearing, smelling, touching and tasting - play a lesser but still important role in the Big Butte aesthetic experience. Visual perception is the primary aesthetic component in terms of initial impact and lasting affect, but other components such as odor provide depth to the immediate experience.

Animal calls and movement, wind movement, and water movement are the primary sound stimuli in the area. Odor is provided primarily through plant fragrance. Textures and forms associated with vegetation, soil, and rocks appeal to the sense of touch.

Plant products and fresh water provide stimuli for the sense of taste. Compared to stimuli in other physiographic settings (e. g. ocean sounds and odors) few of the sensory experiences in the study area are overwhelming. Under these circumstances, the occurrence of stimuli, which are subtle and easily hidden or diluted, and a satisfactory perceptual experience are greatly dependent on lack of unnatural influences.

III. ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION (UNMITIGATED)

In the following discussion, possible environmental impacts are considered without regard to any mitigation measures that might be taken. Mitigating measures are discussed in Section IV.

A. Road Construction and Maintenance

1. Increased soil loss and stream sedimentation will occur. The quantity of soil lost and the increase in stream sedimentation caused by road construction, cannot be accurately determined unless intensive studies are conducted under all climatic conditions. An estimate can, however, be made to project potential soil loss. A 16-foot road constructed across an average slope of 60% will contain 1/10 acre per 100-foot segment. Since approximately 4.9 miles of road are proposed to be constructed across public lands, a total of 26 acres will be exposed. Water collected on this area averages about 107 acre feet per year. If runoff from the disturbed area is not controlled, up to 0.21 acre feet of sediment can be carried to the Eel River each year as a result of constructing the 4.9 miles of roadway. However, under normal conditions,

much of this sediment would be intercepted before reaching existing streams. New road construction across 3.3 miles of private lands can be expected to have proportionally the same impact on the watershed.

Any substantial increase in sedimentation will have a deleterious effect upon the fish habitat in Hulls, Casoose, Lynch, Red Rock, and Peterptor Creeks. Since an anadromous fishery exists in Hulls Creek, these impacts may be felt far outside the Bug Butte area.

However, improvement of the existing 19 miles of private road will include installation of a sufficient number of drainage facilities to reduce present sediment yields.

2. Water quality will be affected. Road construction will increase water turbidity during the first winters flush of the drainage and until disturbed ground has stabilized. Solid debris will also work its way into tributaries. After the first two winters, stream sedimentation and turbidity should return to background levels or to not more than 3% to 5% above background levels.

   Some continued effect upon water quality may be expected from road maintenance activities. The extent of this impact depends upon the effectiveness of the water control facilities designed into the road.

3. Road construction will increase the possibility of landslides

and soil slippage along the roadway. To determine the amount of increase would require intensive study.

Once the natural angle of repose is exceeded (by cuts, fills and sidecast material), instability increases based upon a number of characteristics; these include the type of vegetation, type of soil, soil moisture conditions, angle and depth of bedrock and weight of sidecast material.

4. Air quality will be affected. Road construction and maintenance equipment and burning of right-of-way slash will add carbon monoxide, hydrocarbons and particulate matter to the atmosphere. No data are available on quantities and concentrations of pollutants that will be produced. This pollution, however, will be short-lived, and should not create any lasting effect on the environment. Construction activities will occur over a one-month period and burning of right-of-way slash will take one week.

5. Road construction will affect wildlife living in the area.
   a. It will destroy about 42 acres of vegetation and cover presently used by wildlife (24 acres in roadbed, 18 acres in cuts and fills). The area in the cuts and fills will grow back, increasing wildlife forage and browse, but the overall increase will be slight since the 24 acres in the roadbed will be unproductive as long as the road is used.
   b. It will produce 8 miles of "edge effect" (area where two different vegetative ecotypes join). Deer and upland game will avoid the roadway during periods of vehicular use. Increased succulent forage provided by reseeding, and the

freedom of movement provided by clearing dense brush will,however, attract these animals.

c. It will disturb 8 to 10 existing seeps which provide succulent vegetation and water for wildlife use.

d. For road construction purposes, it will be necessary to cut live trees and snags within the right-of-way. Some of these trees may be used by raptors for observation, perching and nesting. Cutting these will create a temporary disturbance to raptors but substitute trees will be found for observation and perching, if they are available. Trees used for nesting, however, are another matter. Nest trees are used year after year and disturbance of these could cause raptors, especially Bald and Golden eagles, to leave the area permanently.

The proposed right-of-way has been inspected, both on foot and by helicopter, and no nest trees have been identified. Permanent damage to raptors should, therefore, be minimal.

e. Noises related to road construction and maintenance will disturb wildlife and possibly livestock operations. This disturbance, however, will be temporary. Livestock will return within a matter of hours once the disturbance quiets down. Deer and upland game birds may take up to one month to return, while bear and mountain lion may take as long

as one year. The length of time before raptors will return after being disturbed by road construction is unknown.

6. Road construction and maintenance equipment will emit sounds which will increase the noise levels in Big Butte and the surrounding roadless and wilderness areas. This could detract from enjoyment of recreational and wilderness values. There are no residences near the proposed project and the disturbances will occur over relatively short intervals.

7. Road construction will provide a better access route for public and private use and it will shorten initial attack time by one hour, enhancing fire suppression effectiveness.

8. Construction of an access road into Big Butte will adversely impact the primitive values of the area and may have an adverse impact upon the adjacent roadless areas. An extension of the road east of Bull Ridge will be visible from the existing Yolla Bolly Wilderness Area and will, therefore, detract from the quality of the wilderness experience.

B. Timber Harvest

1. Timber harvesting will have a temporary adverse impact upon the watershed. The hydrologic cycle of the area can be viewed in the conte t of a system in which the major functions can be classified as input, output and storage. Inputs to the forested ecosystem are in the form of precipitation and heat energy. Moisture storage is provided in the vegetative

canopy, forest floor and in porous rock. Evapo-transpiration, surface water and ground water represent outputs from the system. Timber harvest will decrease interception and, therefore reduce evaporation loss, as well as loss through transpiration. However, increased evaporation from the exposed soil surface may offset these reductions. Increases in water yield will generally occur because soil evaporation is less than transpiration and evaporation of intercepted moisture.

2. Timber harvest will have an impact upon water quality for approximately two years. The heaviest sediment concentrations can be expected during the first period of precipitation following logging. Outside of sediment production, water quality is not greatly affected by timber harvest. With increased water yield after logging, run-off water increases slightly in acidity. Harvesting removes, essentially, only the tree bole from the area, and this is composed primarily of carbon, hydrogen, and oxygen - a relatively small proportion of the nutrients taken up from the soil are deposited in the bole. A very small percentage of the nutrient capital of the stand is removed through timber harvesting. Disturbance of the forest floor may result in an increase in leaching, but is not expected to be sufficiently great to have a significant effect upon water quality.
3. Timber harvesting will increase the possibility of land slides and soil slippage in steep areas.
4. Timber harvesting will affect wildlife living in the area.

a. It will remove on-site brush, succulent forage, and hardwood vegetation which will result in a loss of wildlife forage and cover. However, timber harvesting will also result in an overall reduction in crown-density, allowing more energy to reach the soil surface. This favors the establishment of forbs, grasses and shrubs and provides an increased food supply for wildlife. The overall result is an increase in forage. However, as stand stocking approaches normality and the canopy begins to close, this increased forage will be lost.

b. Timber harvesting will remove old growth trees and snags, some of which may be valuable as raptor nesting, perching, and observation sites.

   The proposed timber sale area, however, has been inspected, both on foot and by helicopter, and no nest trees have been identified.

c. Noises associated with timber harvesting (saws, logging equipment, trucks, etc.) will disturb wildlife and possibly livestock. This distrubance will be temporary and most animals will return shortly after the operation ceases.

d. Timber harvesting will cause soil disturbance, which will result in an initial increase in silt runoff into feeder streams during winter months. These streams and associated riparian habitat will be temporarily disturbed and

altered until harvesting is complete and the site is stabilized. Any increase in sedimentation will have a possible adverse effect upon fisheries habitat. Siltation, if not controlled, could actually eliminate the anadromous fisheries.

Some solid debris could also work its way down into tributaries. This could create barriers for anadromous fish migration.

5. Timber harvesting may result in a temporary increase in fire hazard and, during actual logging operations, fire risk will be increased. The fire hazard, however, should be compensated for by the improved access to the area and the shortened fire suppression time.

6. Burning of slash and debris accumulations will have an adverse impact upon air quality. This will be limited, primarily, to an increase in particulates. No significant quantities of sulfur oxides or nitrous oxides should be produced.

7. The combination of log truck and public use traffic may present a safety hazard. An average of 11 truckloads of logs per day is anticipated for the first BLM timber sale. This estimate is based upon 6.6 MM bd. ft. hauled over a 100-day work year with an average truckload of 6 M bd. ft.

   Louisiana-Pacific Corporation has approximately 30 MM bd. ft. of timber which they intend to harvest. This could add an

additional 17 loads per day to the road use.

The flow of logging truck traffic, however, will not be continual. Louisiana-Pacific will probably remove their privately-owned timber within three years after the proposed road is constructed.

If the U.S. Forest Service decides to use the proposed road for the removal of timber from the Shinbone Ridge area, the impact will again be increased depending upon the volume hauled and the frequency of sales. These figures are unknown at this time.

8. Timber hauling will produce a dust problem along the roadway.
   a. It will saturate the air for short periods following each truck, which may become a nuisance factor for those using the road.
   b. It will coat vegetation on each side of the roadway, which is aesthetically unpleasing and may affect plant growth.

9. In the immediate area of the cutting units, the adverse impact upon aesthetics may be apparent for 10 years or more. The aesthetic impact from the intermediate view zone (between 20 and 100 yards) should be minor, due to employment of the selection system, which will maintain a visual screen of living vegetation. At greater distances the impact will be less noticeable.

10. Timber harvesting will reduce the possibility of a bark beetle epidemic by removing many of the dead, dying and low vigor trees which are essential for bark beetle build-up. This will improve the overall vigor of the stand and will, therefore, increase its productivity. If a stand having a substantial beetle population is left unattended, the population will increase and, in doing so, will weaken and evantually kill trees which are presently vigorous and fast-growing.

11. The sale of BLM timber in the Big Butte area can help to insure the stability of Louisiana-Pacific Corporation's Covelo operation. The operation presently runs on two shifts and processes 34 million board feet of timber per year. Over 50 percent of Covelo's employment is provided by this mill; a significant number of employees are minority group members.

    Louisiana-Pacific Corporation is dependent upon publicly-owned timber. If Louisiana-Pacific is successful in purchasing BLM timber sales, assuming it will be issued a permit across BLM lands to their privately-owned timber, it should be able to continue production at its present rate. Otherwise, it might have to reduce to one shift per day, which may result in up to 100 employees being laid off.

12. Timber harvesting will eliminate the primitive character of the area and may adversely impact primitive values on the adjacent roadless areas. Cutting areas are within one-half mile of the Castle Peak roadless area.

C. Public Use

Much of the controversy generated by the proposed action seems to be associated with the issue of public access. The Trinity County Board of Supervisors expressed concern that provision of access into this portion of the county would require additional public services. They have passed a resolution urging that no action be taken in the Big Butte area until an environmental impact statement is prepared. Some adjacent landowners feel that public access will lead to high-density recreation use and may increase the difficulty of controlling use of the private lands in the Big Butte area. The Sierra Club is interested in insuring that wilderness and primitive values are adequately considered in management decisions.

1. An estimated 1,000 visitor days of recreational use are expected during the first year. This includes about 500 visitor days for hunting, 300 visitor days for fishing and 200 visitor days for sight-seeing. Family camping is a growing recreational pursuit in all parts of the country. An additional 400 visitor days use can be expected if campground facilities are constructed.

   Hunting pressure will probably be heaviest the first year. During the following years, the amount of pressure will depend upon the first year's hunting success and the condition of the game herds. Quite often, use gradually declines after the first year.

   Fishing pressure is presently negligible and, because of the rough terrain and the presence of many other trout streams in the general area, only a slight increase in use is anticipated.

   Since the proposed road will not be a through route, sightseeing

will probably not be a major use of the area.

2. Off-road vehicle use is anticipated and will have adverse impacts, although the severity of these impacts is unknown. Off-road vehicle use will cause some increase in erosion and will add to the sediment load and turbidity of streams.

3. Public access will result in increased littering, water and air pollution and fire danger.

   a. Approximatley 15 cubic feet of litter can be expected for each 100 visitor days.

   b. Water pollution will result from dumping waste materials in streams and other areas where disposal facilities are not provided.

   c. Air pollution (carbon monoxide, hydrocarbons and particulate matter) will result from vehicle and campfire use. This pollution, however, will be minimal because Big Butte will be a low density use area and is isolated from other air pollution sources.

   d. The risk of man-caused fires is presently slight because of the lack of access. Public access will increase this risk.

4. Public use will have an impact upon wildlife in the area.

   a. There will be increased sport harvest of deer, quail, and other upland game.

   b. Off-road vehicle use will cause animal disturbance and possible damage to habitat.

   c. There will be a possible avoidance of the area by bear,

mountain lion and eagles, due to human disturbance.

d. There will be a possible loss of some non-game species (birds, reptiles, amphibians) due to the permanent presence of humans.

e. Public use will disturb nesting birds

f. It will disturb fisheries by increasing water pollution and turbidity.

5. Public access to the Big Butte area will provide an additional trailhead into the Yolla Bolly Wilderness Area. This could increase trail maintenance requirements. Use of the Yolla Bolly increased 15% between 1970 and 1971 and it is expected to continue to increase.

6. Provision of public access into Big Butte will increase the possibility of trespass and vandalism. The fact that the road will dead-end at Big Butte and parties who enter will have to depart over the same route may act to deter vandalism to some extent.

7. The amount of public use projected for Big Butte is not expected to have any noticeable effect upon the Covelo community. Some supplies may be purchased locally, but recreationists are increasingly turning toward campers and trailers and probably will purchase most of their supplies near home. Gas, ice, beverages and hunting and fishing equipment will be the major supplies purchased in Covelo.

8. Soil compaction will occur in areas where use is concentrated

(campsites, picnic areas, etc.) but will be negligible on the remainder of the area.

9. Simultaneous use of the access road by logging trucks and public vehicles will create a safety hazard. Logging truck traffic, however, will occur mostly during week days while recreation traffic will occur mostly during weekends.

10. Public use of roads during wet weather will cause increased erosion. If this occurs, increased road maintenance costs can be expected.

11. Use of roads by the public and off-road vehicles could cause some disturbance to livestock operations, i.e., shooting, chasing livestock, tresspassing, etc.

12. Use by campers, sightseers, hunters and fishermen will detract from the wild character of the area.

13. Vehicular access will be provided to 10,000 acres of national resource lands.

IV. MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

The following measures will be taken to mitigate impacts:

A. Road Construction and Maintenance

1. Road improvement work and new construction will be done under supervision and to Bureau road standards and specifications, keeping the road as narrow as possible for the anticipated needs and safety required. The road standard to be used is SN 16 (16-foot sub-grade plus a four-foot ditch).

2. Unstable soil conditions have been avoided whenever possible. The original road location was inspected by an Engineering Geologist for potential landslide areas and scarps. The route was then relocated around critical areas found during this inspection. The possibility of massive landslides and soil slippage along the roadway should, therefore, be minimal.

3. Special attention will be given to the spacing of cross drainage, the type of soil and grade of side and intake ditches, and the type of soil and slope where cross drains are discharged.

4. All drainage structures which are required for natural drainages will be designed to meet discharges of a 50-year intensity storm.

5. Culverts will be extended down fill slopes and spill basins installed where there is a danger of slope erosion.

6. Where a fill section is exposed to erosion by streams, the fill slopes will be protected by riprap or retaining walls of sufficient size to prevent erosion.

7. Cutbanks, fills, and other disturbed areas will be mulched and revegetated when construction is completed to provide immediate cover for protection from rains and surface runoff. Road disturbance reseeding benefits will be maximized by including some or all of the following seed species in the seed mixture: lana vetch, birdsfoot trefoil, burnet, harding grass, and alfalfa or clover species.

8. Wherever possible, roads will not be built adjacent to streams. Buffer strips of trees or other vegetation will be left to prevent soil and debris from reaching stream channels.

9. Only clearing that is absolutely essential for road construction will be done. The road will be located to fit the ground and to take advantage of existing roads, benches, ridgetops, and other favorable locations.

10. All road construction will be done during the dry season to prevent soil damage and erosion. Fire control and prevention stipulations will be included in the contract.

11. Proper maintenance schedules will be followed to prevent plugging of ditches and culverts.

12. Large drainages will be bridged or provided with a drop structure.

13. Road cuts and fills will be balanced so far as practical to minimize the disturbed surface area. Excess excavation material will be end-hauled to places where it can be used as riprap or fill, or placed in prepared spoil areas.

14. The road grade has been kept as low as possible to reduce erosion potential.

15. Ditchlines will be constructed at the base of all backslopes to control runoff and to reduce the quantity of water on the road surface.

16. Turnouts will be constructed on all blind curves and at other locations where necessary, to provide safe passage of vehicles moving in opposing directions.

17. Berms will be constructed, where necessary,to prevent erosion of embankments.

18. Roadside seeps and succulent vegetation will be protected as much as possible by minimizing sidecast and construction disturbances.

19. Vigilance for raptor use during road construction will be maintained and snags and habitat types that are used will be avoided, wherever possible.

20. Construction equipment will comply with federal and state laws governing air quality and noise output.

21. Impacts upon the Yolla Bolly Wilderness Area and the roadless area in the vicinity of Shinbone Ridge will be minimized by deleting the planned extension of the Big Butte road into the area east of Bull Ridge and by maintaining that area in its present condition until the Forest Service management direction for the Shinbone Ridge area is decided.

22. Special drainage will be designed in the "seep" areas.

B. Timber Sale

In order to minimize the adverse impacts of timber harvesting,

the following mitigating measures will be taken.

1. To reduce the possibility of massive landslide and to minimize the impact on water quality, tractor skidding will be confined to slopes of 45% or less. On steeper slopes, uphill cable logging or some type of aerial logging system will be required by the authorized officer.

2. Buffer strips will be left to safeguard streambank and water courses from visual, thermal, sediment, and debris pollution.

3. No logging will be allowed during wet weather in order to prevent excessive soil compaction and stream sedimentation.

4. In disposing of logging slash, preference, in order of consideration, will be given to: commercial utilization of cull material, chipping, lopping and scattering, and piling and burning. Slash concentrations will be burned only during periods when smoke will disperse rapidly. Burning will be done only after consultation with the California Division of Forestry and will be in compliance with federal and state laws. Broadcast burning will not be permitted.

5. Under the terms of the contract rehabilitation measures will be initiated as soon as logging is completed. These will include water barring, reseeding and/or planting all tractor skid trails, temporary haul roads and landings.

6. Only those snags which present a safety or fire hazard will be cut. Some of these snags may have importance as raptor perching

or nesting sites.

7. The selection system of cutting will be used to harvest timber. This system involves the removal of mature trees either singly or in small groups at intervals of time, permitting the continuous establishment of regeneration. The selection system of cutting is more aesthetically pleasing than clearcutting.

8. Log landings will not be permitted in drainage bottoms or adjacent to live streams.

9. Maximum protection will be given to all oaks, as they provide critically valuable acorn crops for deer and upland game, as well as being valuable as nesting sites.

10. Logging within 700 feet of known eagle nests will not be permitted from March through August. In addition, all snags standing within a 1-1/2 mile radius of eagle nests will be left.

11. Construction of spur roads or landings will not be allowed in the glade areas, which provide valuable wildlife habitat.

12. Warning signs and regulated hauling periods will be used to insure vehicle safety.

13. Roads will be watered or oiled during periods of log hauling to abate dust. Application of oil will be regulated so that the possibility of stream pollution will be minimized.

14. Timber harvesting equipment will meet federal and state law requirements concerning air quality, noise pollution and fire

safety.

C. Public Use

1. Preparation and implementation of a Recreation Management Plan will minimize the impacts of increased public use of the area. Until such a plan is prepared, the area will not be open to public use. This plan is not currently scheduled, but it will not be prepared prior to 1975.

2. Sheriff's patrol of the area by Mendocino County could be provided. The Mendocino County Sheriff has been contacted and is willing to agree to service the area, without charge. In the case of serious offenses, suspects could be held for Trinity County authorities.

3. Public use will be limited to dry seasons of the year. This will minimize erosion of the roadway and other use areas. The road will be gated.

4. Right-of-way boundaries and national lands will be identified so that accidental trespassing on private lands will be kept to a minimum.

5. To protect wildlife grazing and watershed values, off-road vehicle use will be limited to designated areas.

6. The public will be cautioned about disturbing the eagles and hawks in the area, particularly during the March-July nesting period.

7. To mitigate the possible disturbance of seasonal movement

patterns of the deer herd, the mainline road will be closed from November to March.

8. Warning signs and regulated hauling periods will be used to insure vehicle safety. Logging truck use of the road will be prohibited during the first week of the deer season, on holidays, and from 5:00 p.m. on Fridays until 12:00 midnight on Sundays.

V. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED.

A. Increased sedimentation during the first winter's runoff, which is caused by new road construction, can be reduced but not eliminated. Some sedimentation will also occur along the existing 19 miles of road. This will be primarily because of the need for realignment and widening of some portions of the road. Some sediment may reach the stream channels and adversely affect fish life.

B. New road construction will leave a visible scar along portions of the hillsides until vegetation on the cutbanks and fill slopes becomes established. Even after revegetation, a trace of the road may remain visible.

C. Road construction and timber harvest will inevitably reduce the wilderness quality of the area. This impact will be essentially permanent. The primitive values of the adjacent roadless areas may be reduced.

D. Loss of some wildlife habitat (hardwoods, snags, and understory forage) within the road right-of-way cannot be avoided. The possibility

exists that the area will become unattractive to those wildlife species requiring a wilderness type of habitat. Temporary disturbance to wildlife habitat is a certainty; whether there will be any lasting effects is unknown.

E. Temporary noise and air pollution and human disturbance to wildlife habitat during road construction are a certainty. The lasting effects are unknown.

F. Continued grading of the road will allow fine soil particles to erode away unless the road is oiled or rocked. Oiling and rocking are expensive and surfacing may not be possible under present funding.

G. There will be an increase in sediment production due to off-road vehicle use.

H. Fire risk will increase but may be offset by increased accessibility of the area to fire suppression.

I. There may be trespass by individuals who do not respect private property rights.

VI. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

The proposed action will have only a slight effect upon the long-term productivity of the area.

A. Sediment yield after construction of the road will increase substantially during the first two years. After two years, sediment

yield should not be more than 3% to 5% above background levels. During the average year, 172 acre-feet of water will fall on the 8 miles of road. Under natural conditions, 60% to the 172 acre-feet would run off. Under the denuded condition of the constructed road, 75% to 80% of the 172 acre-feet may run off. This excess water will place erosive pressure on precarious areas in natural drainages causing watershed deterioration until vegetation counterbalances this additional yield. Skid trails will have a similar effect. However, the acreage in skid trails cannot be predicted.

B. Wildlife will avoid the road construction area because of the noise associated with construction. However, once the road is completed, wildlife will use the road as a means of access.

C. The timber sale will cover approximately 300 acres which will store 172 acre-feet of water annually. It is estimated that after the harvest, runoff will increase from 2% to 5% for the first two years or until the understory has established a protective cover. After the cover has been established, the only increased water yield will come from roads or other denuded areas. With good watershed practices incorporated into logging practices and rehabilitation measures, runoff should be limited to near average levels.

D. Wildlife, particularly bear and raptors, will avoid active timber harvesting operations, but they will usually return once the operation is completed.

E. Timber harvesting will create some soil disturbance and destroy ground vegetation and cover and some snags, but one long-term effect will be an increase in deer and upland game food. Logging will provide improved hunting opportunities and increase desirable game forage.

F. No known unique or rare wildlife species habitat would be damaged or lost because of implementation of the proposal. Raptor use sites require further study and logging restrictions may be required if any critical use areas are found in the timber sale vicinity. None have been found to date.

VII. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The loss of primitive quality, which will be caused by the proposed action, constitutes an essentially irreversible commitment of the area's resources. Of course, given sufficient time, this impact is reversible; but it would require at least one full rotation of 100 to 120 years to restore the area to a primitive condition.

The eight miles of new road construction will create a loss of approximately 24 acres of vegetation and cover which will not be replaced as long as the road is in use.

VIII. ALTERNATIVES TO THE PROPOSED ACTION

A. ALTERNATIVE NO. 1 - No Action - BLM would not acquire access, construct the Big Butte road, or initiate timber harvest and related forest management practices. Louisiana-Pacific Corporation's right-of-way application would be denied.

1. Environmental Impacts (Unmitigated)

This alternative would have the least impact on the environment of those identified.

a. Under this alternative, harvesting of the timber would not be allowed and the overstory of pine and Douglas fir timber could, therefore, change to one dominated by the presently suppressed white fir and incense cedar. This would create a potential loss in yield of 800 thousand to one million board feet per year.

b. If the present bark beetle infestation were to become epidemic, stand structure could be changed in 3 to 5 years. Without treatment, an insect epidemic could decimate the pine timber. Once a tree is killed, lumber quality is quickly degraded by blue-staining. For general purpose construction grades, all merchantable lumber is usually lost if trees are not salvaged within one year after death.

c. The net effect upon wildlife and fisheries would be to maintain the status quo. There would be no alteration of habitat and, except for changes caused by succession, food supplies should remain stable. Fisheries habitat would be essentially unchanged. There would be no soil disturbance or alteration of stream channels.

d. There would be no change in present recreational use of the area, since legal public access would not be obtained. The present wild character of the area would be maintained.

e. The Louisiana-Pacific mill, at Covelo, presently supports 112 mill workers on two shifts, and 100 woods workers. Minority employment (primarily Indian) is 20%. If Louisiana-Pacific is not granted a right-of-way across national resource lands, 30 million board feet of corporation-owned timber would not be available for harvest. This could force the corporation to reduce mill operations to one shift, adding to the area's already high unemployment. Up to 100 employees could be laid off and the payroll could be reduced by $1.2 million, creating serious economic dislocation in the Round Valley community.

The mill is also heavily dependent upon public timber supplies. If this alternative were taken, they would lose the opportunity of purchasing an additional 30 million

board feet of timber. This would also have a severe effect on their operations.

2. Mitigating Measures

a. Deterioration of the watershed could be reversed and stability restored if grazing management systems were used to control livestock use and improve range conditions.

b. Protection of the timber resource can only be insured by implementing the proposed action or by taking alternatives 3 or 4 mentioned within.

3. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented.

a. The loss of present volumes of mature sawtimber and of future increment cannot be avoided under the "no action" alternative. If the present bark beetle infestation reaches epidemic proportions, significantly greater pine mortality can be expected.

b. Louisiana-Pacific Corporation may have to reduce mill operations and may shut down completely, since there are no alternate sources of timber that they can depend upon.

B. ALTERNATIVE NO. 2 - Private Rights-of-Way Only - Louisiana-Pacific Corporation's right-of-way application would be granted. BLM

would not acquire access and would not develop the national resource lands resources.

1. Environmental Impacts (Unmitigated)

   a. New road construction, in this alternative, would have the same environmental impact as the construction contemplated in the proposed action.

   b. Sedimentation from the existing segment (19 miles) of road would be somewhat less than if the proposed action were implemented, since no widening would be done and the general public would not be using the road.

   c. Timber harvesting on private lands would result in a temporary increase in deer and upland game forage. It would also create a possible loss of raptor nesting sites. However, the net effect on wildlife on national resource lands would be low.

   d. The primitive quality of the southeastern portion of the BLM lands would be destroyed for some time, perhaps 20 to 50 years, because of new road construction.

   e. The impact upon the national resource lands timber resource would be the same as the impact of the no-action alternative, except that fire suppression time would be reduced.

   f. This alternative, by making privately-owned timber available, will help insure the stability of the Covelo mill.

2. Mitigating Measures

The same mitigation requirements that were discussed for road construction in the proposed action would limit watershed damage.

3. Adverse Impacts which Cannot be Avoided Should this Alternative Be Implemented

a. Some sedimentation is inevitable due to the fragile soils and steep topography of the area.

b. Loss of public timber volumes would be the same as for the "no-action" alternative; this loss cannot be mitigated.

c. Loss of primitive values on a portion of the area constitutes an adverse impact which cannot be avoided.

C. ALTERNATIVE NO. 3 - Administrative Access, Private Rights-of-Way

BLM would acquire administrative access to public lands and would initiate forest management practices, but would not provide public access. Louisiana-Pacific Corporation's right-of-way application would be granted.

1. Environmental Impacts (Unmitigated)

a. Since the same amount of road would be constructed as in the proposed action, watershed damage would be similar. Less traffic and the accompanying reduction in the need for road maintenance should result in somewhat slighter impacts.

b. Impacts of timber harvesting would be identical to those

described in the proposed action.

c. The major impacts of this alternative, which differ from those described in the proposed action, involve changes caused by the restriction of public use from the area. Recreation opportunities would be lost - an estimated 1000 to 1400 visitor days per year. The adjacent Mendocino National Forest is not now experiencing heavy recreation use; however, as populations in urban areas increase, the supply of public lands for outdoor recreation should assume greater importance.

d. Littering, water pollution, fire risk, etc., would be less than if the proposed action were implemented, again because of the lack of public use.

e. Use of the Yolla Bolly Wilderness Area might be somewhat lighter under this alternative. If this is the case, impacts on the wilderness could be less than if the proposed action were implemented.

2. Mitigating Measures

Essentially the same mitigating measures would be employed in this alternative as in the proposed action. However, mitigating measures related to public use would not be applicable.

3. Adverse Impacts which Cannot be Avoided Should this Alternative Be Implemented

The impacts of road construction and timber harvest are

described in the proposed action, and those impacts which would be impossible to mitigate are the same for this alternative.

D. ALTERNATIVE NO. 4 - Administrative or Public Access Only - BLM would acquire administrative access to national resource lands and would initiate forest management practices but would not provide public access; or BLM would acquire access which would permit development of all resources, including public use. In either case, Louisiana-Pacific Corporation's right-of-way application would be denied.

1. Environmental Impacts (Unmitigated)

Since the unmitigated impacts of administrative access and public access have been discussed under Alternative No. 3 and the Proposed Action, respectively, and since impacts would be identical in this action, they will not be repeated here. The only impacts that would differ through implementation of this action would be those resulting from the denial of Louisiana-Pacific Corporation's right-of-way application. This would mean that Louisiana-Pacific Corporation could be forced to reduce mill operations to one shift. It could also mean employee layoff, payroll reductions and serious economic dislocation in the Round Valley area.

2. Mitigating Measures

Louisiana-Pacific could purchase BLM timber, but BLM sales alone would not sustain their present level of operation.

Furthermore, BLM sales are competitive and there is no guarantee that Louisiana-Pacific would purchase any of them.

There are no other measures which would mitigate the impacts upon the source of primary employment under this alternative, since there are no other sources of timber that Louisiana-Pacific Corporation can depend upon to sustain its present operational level.

3. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented

Louisiana-Pacific Coporation will have to reduce mill operations to one shift or possibly shut down completely since there are no alternate sources of timber available which they can depend upon.

E. Alternate No. 5 - Roadless Area

BLM would acquire access rights for the public up to the national resource lands in Section 34, T. 25 N., R. 12 W., M.D.M., but no new road construction or timber harvesting would be done. Management would be limited to those activities which do not require new road construction. Louisiana-Pacific Corporation's right-of-way application would be denied.

1. Environmental Impacts (Unmitigated)

There would be no new road construction or timber harvesting under this alternative. Other unmitigated impacts would be

as follows:

a. Road Improvement and Maintenance

1) Widening and some realignment of the existing 19 miles of private road would be required. This would add to the quantity of sediment carried down Hulls Creek to the Eel River.

Any substantial increase in sedimentation would have a deleterious effect upon the fish habitat in Hulls, Casoose, Lynch, Red Rock, and Peterptor Creeks. Since an anadromous fishery exists in Hulls Creek, these impacts could possibly be felt far outside the Big Butte area.

2) Water quality would be affected. Road improvement would increase water turbidity during the first winter's flush of the drainage and until disturbed areas stabilize. Solid debris could also work its way into tributaries. After the first two winters, stream sedimentation and turbidity should return to background levels or to not more than 3% to 5% above background levels.

Some continued effect upon water quality could be expected from road maintenance activities. The extent of this impact depends upon the effectiveness of the water control facilities designed into the road.

3) Air quality would be affected. Road improvement and maintenance equipment would add carbon monoxide, hydrocarbons

and particulate matter to the atmosphere. This pollution, however, would be short-lived, and would not create any lasting effect on the environment.

4) Noises related to road improvement and maintenance would disturb wildlife and possibly livestock operations. This disturbance, however, would be temporary.

5) Road improvement and maintenance equipment would emit sounds which are considered undesirable or obnoxious by some people. However, there are no residences within hearing distance of the project and disturbance should be negligible.

b. Public Use

1) Estimated use would be considerably less than use under the proposed action. The area would be available only to hikers and horseback riders.

2) This alternative would result in increased littering, water and air pollution and fire danger.

   a) Approximately 5 cubic feet of litter could be expected for each 100 visitor days. This alternative would, however, make litter pickup more difficult.

   b) Water pollution would result from dumping waste materials in streams and other areas where disposal facilities are not provided.

c) Air pollution (carbon monoxide, hydrocarbons and particulate matter) would result from vehicle and campfire use. This pollution, however, would be minimal because Big Butte would be a low density use area and is isolated from other air pollution sources.

d) The risk of man-caused fires is presently slight because of the lack of access. Public access would increase this risk and since there would be no vehicular access into the use area, fire suppression time and costs would drastically increase.

3) Public use would have an impact upon wildlife in the area.

a) There would be increased sport harvest of deer, quail and other upland game.

b) There could be a possible avoidance of the area by bear, mountain lion and eagles due to human disturbance.

c) There could be a possible loss of some nongame species (birds, reptiles, amphibians) due to the permanent presence of humans.

d) Public use could disturb nesting birds.

e) Fisheries could be disturbed by increased water pollution and turbidity.

4) Public access to the Big Butte area would provide an additional trailhead into the Yolla Bolly Wilderness Area. This

could increase trail maintenance requirements.

5) Provision of public access into Big Butte would increase the possibility of trespass and vandalism. The fact that parties who enter would have to depart over the same route, may act to deter vandalism, to some extent.

6) The amount of public use projected for Big Butte is not expected to have any noticeable effect upon the Covelo community. Some supplies may be purchased locally, but recreationists are increasingly turning toward campers and trailers and probably would purchase most of their supplies near home.

7) Soil compaction would occur in areas where use is concentrated (campsites, picnic areas, trails, etc.) but would be negligible on the remainder of the area.

8) Public use of roads during wet weather would cause increased erosion. If this were to occur, considerable road maintenance costs could be expected.

9) Public access would be provided to 10,000 acres of presently landlocked (for all practical purposes) national resource lands.

2. Mitigating Measures

a. Road Improvement and Maintenance

1) Road improvement work would be done to Bureau road standards

and specifications, keeping the road as narrow as possible for the anticipated needs and safety required.

2) Cutbanks, fills and other disturbed areas would be mulched and revegetated when improvement is completed to provide immediate cover for protection from rains and surface runoff. Road disturbance reseeding benefits would be maximized by including some or all of the following seed species in the seed mixture: lana vetch, birdsfoot trefoil, burnet, harding grass, and alfalfa or clover species.

3) Only clearing that is absolutely essential for road improvement would be done.

4) All road improvement would be done during the dry season to prevent soil damage and erosion.

5) Proper maintenance schedules would be followed to prevent plugging of ditches and culverts.

6) Turnouts would be constructed on all blind curves and at other locations deemed necessary to provide safe passage of vehicles moving in opposing directions.

7) Berms would be constructed, where necessary, to prevent erosion of embankments.

8) Improvement and maintenance equipment would comply with federal and state laws governing air quality and noise output.

b. Public Use

1) Preparation and implementation of a Recreation Management Plan would minimize the impacts of increased public use of the area. Until such a plan is prepared, the area would not be open to public use.

2) Sheriff's patrol of the area could be provided. The Mendocino County Sheriff has been contacted and is willing to agree to service the area, without charge. In the case of serious offenses, suspects could be held for Trinity County authorities.

3) Public use would be limited to dry seasons of the year. This would eliminate excessive erosion on the roadway and other use areas.

4) Specific areas would be designated for public use, adequate sanitary facilities and refuse disposal would be provided and litter pickup would be provided at regular intervals.

5) Right-of-way boundaries and public lands would be identified so that accidental trespassing on private lands would be minimal.

6) The public would be cautioned about disturbing eagles and hawks, particularly during the March - July nesting period.

7) To mitigate the possible disturbance of seasonal movement patterns of the deer herd, the mainline road would be closed from November to March.

3. Adverse Impacts Which Cannot be Avoided Should the Alternative be Implemented

Adverse impacts which cannot be avoided will be identical to those discussed in the "no-action" alternative.

In addition, the fire hazard will be increased considerably because of increased use, without improving fire suppression time.

IX. ROUTES CONSIDERED

Four access routes were investigated as means of providing access to the Big Butte area. Of these, the proposed route, as described on page 3 is considered to be the least damaging to the environment.

The environmental impacts of constructing a road on the proposed location are discussed in the proposed action. In contrast to the other routes, it will neither cross major streams, nor will it be visible from the wilderness area (if it is not extended east of Bull Ridge).

The three alternate routes considered are:

A. Indian Dick Road Extension

This route begins at the end of the Forest Service controlled road (1 N 02) in the NW 1/4 of Section 22, T. 25 N., R. 11 W., M.D.M. and courses in a northerly direction towards a landmark known as Morrison Camp, with an eventual tie to the Six Rivers National Forest system on the north. This road would be an interforest road system located entirely within the National Forest boundaries. In order to develop national resource lands, a spur road would have to

be constructed westward from Morrison Camp to Big Butte.

This route traverses extremely rugged terrain and would require crossing the Middle Fork of the Eel River. Soils along this route are complex and the possibility of slumps and slides is high. High sediment yield is probable. Some portions of this route could be visible from the Yolla Bolly Wilderness Area.

B. Hulls Creek Road Extension

A county road ends at Hulls Creek, 25 miles north of Covelo, in Section 27, T. 5 S., R. 8 E., H.M. From this county road an existing steep and narrow private road runs northeasterly three miles to a ridgetop. It would be necessary to construct nine miles of new road across BLM and private lands to reach the timber sale area in Section 24, T. 25 N., R. 12 W., M.D.M. At least 5 miles of the proposed new construction would also be required, in addition to these 9 miles, to obtain adequate development of the national resource lands. Sedimentation would, therefore, be greater than on the Big Butte road. The route would cross unstable hillsides and extremely rocky terrain and would also require crossing of Antone and Lynch Creeks.

C. Four Corners Rock Extension

This route would require extending the Forest Service Four Corners Rock Road (27 N 02) from Section 23, T. 26 N., R. 12 W., M.D.M., across four miles of National Forest to reach Big Butte. An additional four miles of road construction across private lands would be needed to reach the timber sale area. It would also produce

greater potential soil loss than would the Big Butte route and it would be visible from the Yolla Bolly Wilderness Area.

X. CONSULTATION AND COORDINATION WITH OTHERS

A. The following federal, state, and local governmental agencies, and other interests have been consulted during the development of the proposed action and in the course of preparing the draft statement:

Forest Service, Mendocino National Forest

Soil Conservation Service

Bureau of Indian Affairs

California Department of Fish and Game

Mendocino County Agencies

Mendocino County Board of Supervisors

Trinity County Board of Supervisors

Northern California County Supervisors' Association

North Coast Rivers Association

Sierra Club, Legal Defense Fund

Sierra Club, Redwood Chapter

Crawford Lumber Company

Louisiana-Pacific Corporation

Mr. Richard A. Wilson

B. Comments on the draft statement have been requested from the following agencies, organizations and individuals.

Federal Agencies

Environmental Protection Agency

U.S.D.A., Agricultural Research Service

U.S.D.A., Forest Service

U.S.D.A., Soil Conservation Service

U.S.D.I., Office of Environmental Project Review

U.S.D.I., Bureau of Indian Affairs, Bureau of Outdoor Recreation, Bureau of Sport Fisheries and Wildlife, Geological Survey, National Park Service

State Agencies

Office of Planning and Research, Office of the Governor (State Clearinghouse)

Local Government

Mendocino County Board of Supervisors

Trinity County Board of Supervisors

Organizations and Individuals

Louisiana-Pacific Corporation

Northern California County Supervisor's Association

North Coast Rivers Association

Sierra Club - Legal Defense Fund

Sierra Club - Redwood Chapter

Society of American Foresters, Northern California Section

Society of American Foresters, Jedediah Smith Chapter

The Wildlife Society, Sacramento Chapter

Mr. Stephen Birdelbough

Mr. John Brady

Mr. Hamilton Budge

Mr. Ken Lytle

Mr. Daniel Ruggles

Mr. Richard Wilson

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BLM MANUAL GUIDELINES AND POLICIES

1602 - Basic Guidance
1603 - Supplemental Guidance
1604 - Management Environment Analysis
1605 - Unit Resource Analysis
1606 - Economic Profile
1790 - Environmental Protection and Enhancement
2031 - Environmental Quality and Natural Beauty
5110 - Timber Management Plans - Stream Protection
5400 - Sales and Forest Products
6111 - Quality Evaluation of Recreation Use Opportunities
6221 - Primitive Areas
6500 - Wildlife Management
6512 - Wildlife - Forest Management
6670 - Aquatic Studies
6760 - Stream Management and Development
7000 - Watershed Management
7100 - Guidelines for Watershed Conservation and Development Program Activities
7415 - Stabilization
7420 - Water Management and Development
9113 - Roads

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